What is claimed is:

1. A CRC encoding circuit for generating a CRC code in accordance with a parallel data having a remainder portion data in a last data set of the parallel data, comprising:

a first encoding unit for generating one or more first CRC codes in parallel in accordance with the remainder portion data;

a CRC code selecting unit for selecting a second CRC code having predetermined number of bytes, from the first CRC codes generated by the first encoding unit;

a converting unit for converting the remainder portion data into a serial data; and

a second encoding unit for generating a third CRC code in accordance with the second CRC code selected by the CRC code selecting unit and the serial data converted by the converting unit.

2. The CRC encoding circuit as claimed in claim 1, wherein the parallel data is a 4^n-byte parallel data, the predetermined number is 4^{n-m}, and the converting unit converts the remainder portion data into a 4-byte serial data, where n is a natural number and m is a natural number selected from 1 to n.

3. The CRC encoding circuit as claimed in claim 1, further comprising:

a detecting unit for detecting the remainder portion data from the last data set of the parallel data; and

wherein the converting unit converts the remainder portion data which is detected by the detecting unit, into a 4^{n-m}-byte serial data, where n is a natural number and m is a natural number selected from 1 to n.

4. The CRC encoding circuit as claimed in claim 1, wherein the parallel data is a variable-length data.

5. A CRC encoding method for generating a CRC code in accordance with a parallel data having a remainder portion data in a last data set of the parallel data, comprising the steps of:

generating one or more first CRC codes in parallel in accordance with the remainder portion data;

selecting a second CRC code having predetermined number of bytes, from the first CRC codes;

converting the remainder portion of the parallel data into a serial data; and

generating a third CRC code in accordance with the second CRC code and the serial data.

6. The CRC encoding method as claimed in claim 5, wherein the parallel data is a 4^n-byte parallel data, the predetermined number is 4^{n-m}, and the serial data is a 4-byte serial data, where n is a natural number and m is a natural number selected from 1 to n.

7. The CRC encoding method as claimed in claim 5, further comprising the step of:

detecting the remainder potion data from the last data set of the parallel data;

wherein the remainder portion data is converted into a 4^{n-m}-byte serial data, where n is a natural number and m is a natural number selected from 1 to n.

8. The CRC encoding method as claimed in claim 5, wherein the parallel data is a variable-length data.

9. A data sending device, comprising:

a CRC encoding circuit for generating a CRC code in accordance with a parallel data having a remainder portion data in a last data set of the parallel data, comprising: a first encoding unit for generating one or more first CRC codes in parallel in accordance with the remainder portion data; a CRC code selecting unit for selecting a second CRC code having predetermined number of bytes, from the first CRC codes generated by the first encoding unit; a converting unit for converting the remainder portion data into a serial data; and a second encoding unit for generating a third CRC code in accordance with the second CRC code selected by the selecting unit and the serial data converted by the converting unit.

10. The data sending device as claimed in claim 9, wherein

the parallel data is a 4^n-byte parallel data, the predetermined number is 4^{n-m}, and the converting unit converts the remainder portion data into a 4-byte serial data, where n is a natural number and m is a natural number selected from 1 to n.

11. The data sending device as claimed in claim 9, wherein the CRC encoding circuit further comprises:

a detecting unit for detecting the remainder portion data from the last data set of the parallel data;

wherein the converting unit converts the remainder portion data which is detected by the detecting unit, into a 4^{n-m}-byte serial data, where n is a natural number and m is a natural number selected from 1 to n.

12. The data sending device as claimed in claim 9, the parallel data is a variable-length data.

13. A data receiving device, comprising:

a CRC encoding circuit for generating a CRC code in accordance with a parallel data having a remainder portion data in a last data set of the parallel data, comprising: a first encoding unit for generating one or more first CRC codes in parallel in accordance with the remainder portion data; a CRC code selecting unit for selecting a second CRC code having predetermined number of bytes, from the first CRC codes generated by the first encoding unit; a converting unit for converting the

remainder portion data into a serial data; and a second encoding unit for generating a third CRC code in accordance with the second CRC code selected by the selecting unit and the serial data converted by the converting unit.

14. The data receiving device as claimed in claim 9, wherein the parallel data is a 4^n-byte parallel data, the predetermined number is 4^{n-m}, and the converting unit converts the remainder portion data into a 4-byte serial data, where n is a natural number and m is a natural number selected from 1 to n.

15. The data receiving device as claimed in claim 9, wherein the CRC encoding circuit further comprises:

a detecting unit for detecting the remainder portion data from the last data set of the parallel data;

wherein the converting unit converts the remainder portion data which is detected by the detecting unit, into a 4^{n-m}-byte serial data, where n is a natural number and m is a natural number selected from 1 to n.

16. The data receiving device as claimed in claim 9, the parallel data is a variable-length data.